



About Customer

The McArthur Lab is based at Canada's McMaster University, which is consistently recognized in global university rankings as a research-intensive, student-centered university dedicated to advancing human and societal health and well-being. <http://mcarthurbioinformatics.ca/>

Geo

North America

Industry

Healthcare

Solution Area

Accelerate Core Applications
Activate Real-time Analytics

Products in Use

Pure Storage FlashBlade

The Need for Speed in the Fight for Global Health

As antimicrobial resistance and new coronaviruses place modern medicine under siege, Andrew McArthur, Ph.D., a genomics professor and researcher at Canada's McMaster University, is fighting back. He knows that somewhere in the millions of data points processed in his lab daily, there's a new drug waiting to be discovered.

A new gene sequencing system could help him achieve his goals more quickly, but to realize that goal, he needed fast, reliable storage. McArthur turned to Pure Storage®, which provides the power the researchers need—not only to accelerate life-saving drug discovery but also to monitor global health threats such as COVID-19.

“There's no point in playing with traditional storage because it's just not fast enough. With Pure Storage FlashBlade, we can stay ahead of the curve as we fight global threats to human health.”

ANDREW G. MCARTHUR,
PH.D., MCMASTER
UNIVERSITY

Impact on McArthur Lab



Speeds drug discovery by analyzing select data sets 24X faster.



Allows the team to monitor global health threats more closely.



Scales to support additional research and clinical partnerships.

Challenges



Data from massive genomic datasets were doubling every 3 months.



Needed faster storage for critical drug discovery to combat superbugs.



Analyzing data took up to two days, slowing research and clinical work.

Results



Handles data more efficiently as DNA sequencing technology evolves.



Speeds access to biomedical data to advance global health research.



Generates results in three hours or less for insights that save lives.

Biomedical Discovery: A Huge Data Generator

McArthur is at the heart of a collaboration with global researchers who are working around the clock. His team at McMaster's McArthur Labs designed, developed, and oversees a global database that curates data, models, and algorithms associated with superbugs.

The database processes 600 to 1,000 superbugs every day. Sequencing a single pathogen from one patient can take up to three hours, and researchers may have hundreds of thousands of pathogens to process—so speed is critical.

"It really boils down to one simple question: how quickly is our infrastructure going to get us to our information?" says McArthur. "Every little margin we can get accelerates lab or public health work."

Keeping Up with Gene Sequencing Technology

Investigators at McMaster invested in PacBio, a new generation of gene sequencing systems that provides researchers with highly accurate, but previously unattainable, information. But not before investing in Pure Storage FlashBlade®.

"We needed a modern-day infrastructure to underpin our efforts to combat the superbug crisis, which is increasing in both magnitude and severity," says McArthur. "Pure provides large, rapid, and nimble data storage capacity that can scale as gene sequencing technology advances. It's twice as fast at one-third of the cost."

To scale, McMaster can simply add more blades without compromising on performance. FlashBlade allows McArthur and his team to keep up with DNA sequencing data, generating insights that lead to faster identification of global threats.

"The goal is to reduce time-to-diagnosis for conditions such as sepsis from two days to less than four hours someday, maximizing a patient's chances for survival significantly," says McArthur.

A Pandemic-Ready Storage Infrastructure

An already dire situation reached a new level with the onset of the COVID-19 pandemic. McArthur and his team were able to quickly leverage Pure Storage FlashBlade to run a tool they developed for the international community that helps determine how the virus is spreading and evolving. Researchers gain insight into the virus through next-gen sequencing by isolating it from biological samples, with [near real-time processing times](#). In fact, McArthur and his team were part of the group that isolated the live virus, needed for understanding how it infects and for testing therapeutics.

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